# Advanced Rapid Imaging and Analysis for Monitoring Hazards (ARIA-MH)
## PI: Hook Hua, JPL

## Objective

- Develop a service-oriented hazard/disaster monitoring data system enabling both science and decision-support communities to monitor ground motion in areas of interest with InSAR and GPS data.

- Enable high-volume, low-latency, and automatic generation of NASA Solid Earth science data products (InSAR and GPS) to support hazards monitoring.

- Enable improved understanding through visualization, mining, and cross-agency sharing of results.

- Enable interoperable discovery, access, and sharing of derived actionable products for hazards monitoring via Google Earth and provide geodetic products to USGS Hawaiian Volcano Observatory in collaboration with NASA Applied Sciences.
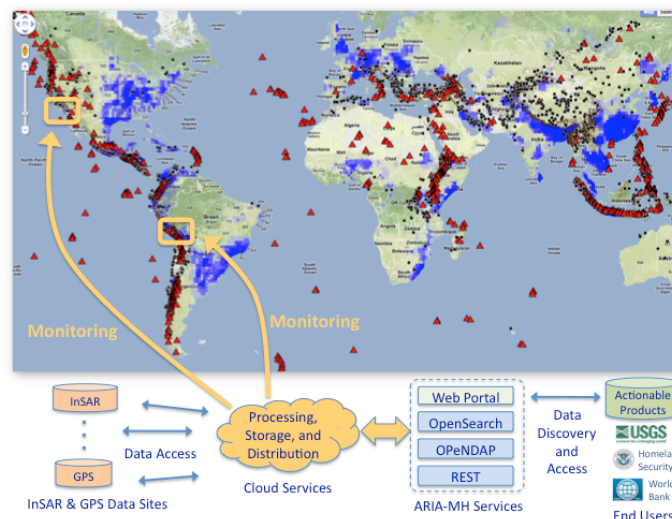


ARIA-MH enabling rapid generation of high-volume InSAR and GPS products for hazards monitoring and disaster situational awareness

## Approach

- Develop hybrid Cloud-based data system that automates monitoring, processing, and elastic usage.
- Integrate InSAR and GPS data products for hazard monitoring.
- Leverage and geographically optimize Cloud-based processing, storage, and distribution of products.
- Integrate advanced data system capabilities (e.g. dynamic resource provisioning and asynchronous messaging)
- Provide delivery of products to external visualization tools (e.g. USGS VALVE)

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## Key Milestones

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|---|---|
| • Initial Cloud-based data processing | 12/12 |
| • Integration of initial InSAR data products | 02/13 |
| • Data system management in Cloud environment | 06/13 |
| • Monitoring-triggered product processing | 03/14 |
| • Integration of time series-based products | 04/14 |
| • Data system semantics and messaging integrated | 12/14 |
| • Integration of data fusion and advisory products | 03/15 |
| • Data product access and services management | 06/15 |
| • Discovery services for infusion developed | 01/16 |
| • Data and services infused into USGS Hawaiian Volcano Observatory | 06/16 |

$$TRL_{in} = 3 \qquad TRL_{current} = 3$$

Earth Science Technology Office